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NICKEL IN DECEMBER 2001

In December, reported domestic nickel consumption on a daily average basis was 14% less than that of November, according to the U.S. Geological Survey. The U.S. economy had been contracting since March 2001 and was in recession. Weak economic conditions persisted throughout a large segment of the U.S. steel industry. Average daily nickel consumption of cathode, pellets, briquets, and ferronickel for stainless steel was 44.7 metric tons per day (t/d)—25% less than the 59.7 t/d for November and 38% less than the 71.7 t/d for December 2000. Consumption of elemental nickel to make nickel-base corrosion-resistant alloys was slightly higher than the corresponding tonnage reported for November. The small increase for corrosion-resistant alloys was offset by an 8% decrease in consumption for superalloys. Sales to plating companies averaged 27.0 t/d, about 7% less than the November sales figure.

Preliminary data indicate that U.S. apparent consumption of primary nickel in 2001 was 17% less than the 2000 figure of 147,000 metric tons (t). Reported consumption of primary nickel to make stainless steel—the largest end use—is projected to be down 21% from the 2000 figure of 37,800 t.

On December 31, U.S. consumer stocks of cathode, pellets, briquets, and powder totaled 1,970 t—20% less than the 2,470 t (revised) for November 30 and 47% less than the interim high of 3,730 t reached at yearend 2000. Stocks in London Metal Exchange (LME) warehouses worldwide increased 3% during December to 19,188 t and were 113% greater than on March 31, when LME stocks bottomed out at 9,000 t after a 16-month slide. Preliminary data collected by the International Nickel Study Group indicated that, at the end of November 2001, world nickel producers (excluding those in Austria, China, the former Yugoslavia, and the Ural area of Russia) had approximately 88,600 t of nickel in primary products in stock, of which 66,200 t or 75% were Class I materials. Class I materials are refined products with a nickel (Ni) content of 99% or greater (electrolytic cathode, pellets, briquets, rondelles, powder, etc.). Class II materials include ferronickel, nickel oxide sinter, and East Asian utility nickel—products with a Ni content less than 99%.

Percentages reported in the above paragraphs may not be verifiable owing to concealment of individual company proprietary data and late reporting of data.

The United States imported 125,000 t of primary nickel in the first 11 months of 2001, 13% less than the 144,000 t for the corresponding period of 2000. Class I materials accounted for 88% of total primary imports received during the first 11 months of 2001. Trade data for December 2001 will appear in a subsequent report.

Canada—Exploration programs move forward in Manitoba and Ontario

Inferred extension of the Thompson Nickel Belt in Manitoba.—On February 25, 2002, Donner Minerals Limited and Falconbridge Limited agreed to jointly explore the Stephens Lake area for nickel. The two companies focused on Stephens Lake after an extensive review of geophysical data for north-central Manitoba (Donner Minerals Limited, 2002). Stephens Lake is 160 kilometers (km) northeast of Thompson and was known to the local Cree peoples as Moose Nose Lake before its outlet was dammed in the late 1960s. The Kettle Dam tripled the size of the lake, flooding more than 218 square kilometers (km^2) of land. Today, the Kettle Dam and Generating Station are part of the huge Nelson River hydroelectric system operated by Manitoba Hydro. The mineral potential of the region between Thompson and Churchill was not fully recognized until recently, and much of the region remains underexplored or totally unexplored.

In 1999, the Provincial Government of Manitoba and the Geological Survey of Canada released newly compiled and reprocessed airborne magnetic data for the region. The aeromagnetic data suggest that the Thompson Nickel Belt may continue northeast from Split Lake under thick glacial overburden toward York Factory and Hudson Bay. Falconbridge has three exploration permits covering 1,898 km^2

of property along the company's interpreted extension of the Nickel Belt. In the summer of 2001, an exploration crew working at the southern margin of the Stephens Lake property discovered an outcrop of a sulfide-rich iron formation protruding through the glacial till—evidence that supports Falconbridge's interpretation of the inferred extension (Donner Minerals Limited, 2002).

Canmine Resources Corporation and Inco Limited also are actively exploring magnetic anomalies in the region around Stephens Lake. Canmine holds extensive claims—the BINCO property—along the Owl River shear zone, a lineament 80 km west of the town of Gillam. (Gillam is about 10 km southwest of the Kettle Generating Station at the eastern end of Stephens Lake.) In 1999, Canmine completed an airborne geophysical survey over its BINCO holdings and identified more than 25 geophysical anomalies for future diamond drilling (Canmine Resources Corporation, 2001). Several companies also have been exploring the Fox River sill, which lies 50 km southeast of Stephens Lake.

The Thompson Nickel Belt, discovered between 1948 and 1957, is estimated to have resources in excess of 150 million tons (Mt) averaging 2.5% Ni. Inco's Manitoba Division alone has 42 Mt of proven and probable reserves averaging 2.26% Ni and 0.14% copper (Cu) (Inco Limited, 2001, p. 26). The deposits in the Thompson Nickel Belt are associated with serpentinized peridotites and other ultramafic rocks, often in proximity to a sedimentary iron formation rich in iron sulfides. The principal ore minerals are pyrrhotite, pentlandite, chalcopyrite, and lesser amounts of pyrite—the standard assemblage found in most of the world's nickel sulfide deposits. Only two of the Belt's six mines are currently in production—Birchtree and Thompson. All six are owned by Inco. At Thompson, some of the ore occurs in or on the margins of the peridotite. The bulk of the Thompson ore, however, is in the adjoining metasedimentary rocks and schists (Boldt and Queneau, 1967, p. 46-51). In February 2000, Inco announced that it would spend $48 million to deepen the Birchtree, extending the life of that mine until 2016 (Inco Limited, 2000).

Sudbury mining division, Ontario.—Strong demand for palladium and platinum has encouraged several mining companies to evaluate the precious metal potential of two large, mafic igneous complexes located on opposite sides of the Sudbury Basin. The first—the River Valley intrusion—is 65 km northeast of the City of Sudbury . The second—the East Bull Lake intrusion—is near Agnew Lake, 80 km southwest of Sudbury. The recent discovery of additional copper-nickel-platinum-group-element (PGE) deposits along the margins of the Sudbury Basin has helped to heighten interest in the two intrusions. A third mafic complex—the Agnew Lake intrusion—is in the early stages of investigation. Nickel would be produced as a byproduct if one or more of the proposed PGE projects were to prove economically feasible and developed.

The River Valley intrusion covers more than 100 km^2 and is composed of pyroxenite, at least four types of gabbro, and lesser amounts of anorthosite and troctolite. Chalcopyrite, pentlandite, and the PGE-bearing sulfides are disseminated or occur as blebs in breccia zones adjacent to the country rock. Pacific North West Capital Corporation has been drilling on the northern margins of the River Valley intrusion at three locations: Banshee Lake, Dana Lake, and Lismer's Ridge. The current 20,000-meter drill program (Phase 5) is being funded by Pacific North West's joint venture partner, Anglo American Platinum Corporation Limited of South Africa (Amplats). The partnership hopes to complete drilling of 80 holes by the end of May, bringing the total number of drill holes on the property to about 220. Selected assays from five mineralized zones have indicated palladium values in the range of 2.2 to 9.4 grams per metric ton (g/t). The corresponding platinum values reportedly ranged from 0.79 to 2.9 g/t. Nickel assays have been on the order of 0.04 to 0.20% Ni (Pacific North West Capital Corporation, 2002).

Mustang Minerals Corporation of Toronto, Ontario, is also exploring the River Valley intrusion for PGEs and nickel. The work is part of a joint venture with Impala Platinum Holdings Limited (Implats), a second South African PGE producer. Like Pacific North West, Mustang Minerals is evaluating the northern margins of the intrusion and focusing on the breccias. Mustang Minerals has found PGE-nickel mineralization in an olivine gabbronorite layer near the top of the breccia zone. The principal PGE minerals are braggite [(Pt,Pd,Ni)S] and cooperite [(Pt,Pd)S] (Skillings Mining Review, 2002). Mustang Minerals has formed a joint venture with Falconbridge to explore the East Bull Lake intrusive for PGEs. The two partners have begun drilling a zone where channel samples from their 2001 field program outlined PGE mineralization (Mustang Minerals Corporation, 2002). At Agnew Lake, Pacific North West is drilling several induced polarization anomalies identified during a geophysical survey of the intrusive in 2000. The Agnew Lake exploration program is being funded by Amplats.

References Cited

Boldt, J.R., Jr., and Queneau, Paul, 1967, The winning of nickel: Princeton, NJ, D. Van Nostrand Company, Inc., 487 p.

Canmine Resources Corporation, 2001, BINCO nickel project: London, Ontario, Canmine Resources Corporation fact sheets, August 17, 5 p.

Donner Minerals Limited, 2002, Donner and Falconbridge to explore for extension of Thompson Nickel Belt: Donner Minerals Limited press release no. 006-02, February 25, 3 p.

Inco Limited, 2000, Inco announces U.S. $48 million deepening of Birchtree Mine in Manitoba: Toronto, Ontario, Inco Limited press release, February 14, 1 p.

———2001, 2000 annual report: Inco Limited , 78 p.

Mustang Minerals Corporation, 2002, Mustang and Falconbridge to drill East Bull: Mustang Minerals Corporation press release, February 25, 1 p.

Pacific North West Capital Corporation, 2002, River Valley exploration: Pacific North West Capital Corporation fact sheets, February 26, 4 pages plus 13 assorted maps and photos.

Skillings Mining Review, 2002, Mustang Minerals/Implats continue PGM exploration—River Valley property near Sudbury, ON: Skillings Mining Review, v. 91, no. 3, February 2, p. 24.

TABLE 1
CONSUMPTION OF NICKEL (EXCLUSIVE OF SCRAP), BY FORM AND USE 1/

(Metric tons, nickel content)

Period	Cathodes, pellets, briquets, and powder	Ferronickel	Oxide-sinter, salts, and other forms	Total	Total year to date
2000:					
December	5,550	844	103	6,490	103,000
January-December	85,100	13,300	4,640	103,000	XX
2001:					
January	6,780	795	268	7,840	7,840
February	6,020	966	249	7,240	15,100
March	6,350	1,030	197	7,580	22,700
April	6,330	863	363	7,560	30,200
May	6,750	886	131	7,770	38,000
June	5,870	818	109	6,800	44,800
July	6,650	799	230	7,680	52,500
August	6,150	981	329	7,460	59,900
September	5,780	1,090	220	7,090	67,000
October	5,790	757	193	6,740	73,800
November	5,330	608	356	6,300	80,100
December:					
Steel:					
Stainless and heat resisting	848	537	W	1,390	28,400
Alloy (excludes stainless)	234	--	--	234	5,540
Superalloys	1,380	--	W	1,380	17,100
Copper-nickel alloys	W	--	--	W	W
Electric, magnetic, and expansion alloys	W	--	--	W	278
Other nickel & nickel alloys	W	--	W	W	W
Cast iron	W	--	--	W	W
Electroplating (sales to platers)	838	--	--	838	11,500
Chemical and chemical uses	W	--	--	W	W
Other uses	1,530	--	249	1,780	22,800
Total reported	4,830 2/	537	249	5,620	85,700
Total all companies (calc) 3/	XX	XX	XX	8,010	122,000
2001: January-December	72,600	10,100	2,890	85,700	XX

W Withheld to avoid disclosing company proprietary data; included in "Other uses" category. XX Not applicable. -- Zero.
1/ Data are rounded to no more than three significant digits; may not add to totals shown.
2/ Of consumption, 4,320 metric tons were consumed as cathodes and pellets, the remainder as briquets and powder.
3/ Figures represent calculated apparent consumption; based on the revised proportion of reported primary consumption (70.11%) to apparent primary consumption for 2000.

TABLE 2
ENDING STOCKS OF NICKEL (EXCLUSIVE OF SCRAP) HELD BY CONSUMERS, BY FORM AND USE 1/ 2/

(Metric tons, nickel content)

Period	Cathodes, pellets, briquets, and powder	Ferronickel	Oxide-sinter, salts, and other forms	Total
2000:				
December	3,730	758	602	5,090
2001:				
January	2,700	745	526	3,970
February	2,290	438	353	3,080
March	2,620	374	387	3,380
April	2,380	330	108	2,820
May	2,380	386	91	2,860
June	2,550	957	75	3,580
July	2,060	995	93	3,150
August	2,340	645	107	3,090
September	2,440	309	103	2,850
October	2,730	391	226	3,340
November	2,470 r/	330	197	2,990 r/
December:				
Steel (stainless, heat resisting and alloy)	883	522	(3/)	1,410
Nonferrous alloys 4/	1,070	--	(3/)	1,070
Foundry (cast irons)	(3/)	--	(3/)	(3/)
Chemical (catalysts, ceramics, plating salts, etc.) and unspecified uses	16	--	289	305
Total	1,970	522	289	2,780

r/ Revised. -- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Stocks held by companies that consume nickel in more than one end-use category are credited to the major category. Stocks are subject to revisions owing to inventory adjustment.

3/ Included in the "Chemical and unspecified uses" category.

4/ Includes superalloys, nickel-copper and copper-nickel alloys, permanent magnet alloys, and other nickel alloys.

TABLE 3
CONSUMPTION AND ENDING STOCKS OF PURCHASED SECONDARY NICKEL, BY USE 1/

(Metric tons, nickel content)

	Consumption			Stocks		
Period	Ferrous scrap 2/	Nonferrous scrap 3/	Total scrap	Ferrous scrap 2/	Nonferrous scrap 3/	Total scrap
2000:						
December	3,470	857	4,330	3,760	715	4,480
January-December	62,200	12,100	74,200	XX	XX	XX
2001:						
January	3,090	920	4,010	3,580	667	4,250
February	4,210	1,090	5,300	3,180	114	3,300
March	4,210	1,030	5,240	3,200	121	3,330
April	5,020	907	5,930	2,730	137	2,870
May	4,570	757 r/	5,330 r/	2,620	122	2,750
June	4,330	793	5,120	2,890	123	3,020
July	5,360	707 r/	6,070 r/	2,770	120	2,890
August	5,590	676 r/	6,260 r/	2,780	113	2,890
September	5,590 r/	689	6,280 r/	3,030 r/	105	3,140 r/
October	5,150 r/	1,470 r/	6,610 r/	3,180 r/	102	3,280 r/
November	3,970 r/	784 r/	4,750 r/	3,330	91 r/	3,420 r/
December	2,980	762	3,740	3,940	88	4,030
2001: January-December	54,100	10,600	64,600	XX	XX	XX

r/ Revised. XX Not applicable.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Nickel content is calculated from an average nickel content and the reported gross weight of scrap.

3/ Combined consumption and stocks of aluminum-base, copper-base, and nickel-base scrap.

TABLE 4
U.S. IMPORTS FOR CONSUMPTION OF NICKEL, BY COUNTRY 1/

(Metric tons, nickel content) 2/

Period and country of origin	Cathodes, pellets, and briquets	Powder and flakes	Ferro-nickel	Metal-lurgical-grade oxide	Waste and scrap	Stainless steel scrap	Chemicals	Total 3/	Total year to date 4/	Wrought nickel
2000:										
November	7,230	1,040	1,260	268	286	302	304	10,700	154,000	81
December	10,100	1,090	390	171	333	154	515	12,700	167,000	77
January-December	119,000	14,400	16,400	2,540	6,530	4,220	3,690	167,000	XX	990
2001:										
January	9,080	1,030	359	75	395	214	358	11,500	11,500	90
February	10,300	786	1,260	82	336	182	324	13,300	24,800	71
March	11,200	797	1,100	39	663	2,140	274	16,200	41,000	123
April	10,000	811	1,020	6	595	173	288	12,900	53,900	67
May	9,740	474	857	--	467	450	238	12,200	66,100	68
June	8,230	673	1,130	199	563	2,640	253	13,700	79,800	87
July	9,490	505	795	195	548	274	207	12,000	91,800	99
August	6,510	1,100	1,790	16	569	352	176	10,500	102,000	82
September	7,980	438	1,080	120	265	291	202	10,400	113,000	156
October	11,200	617	160	263	434	265	279	13,200	126,000	142
November:										
Australia	1,080	120	--	--	--	--	--	1,200	16,500	5
Brazil	40	--	--	--	--	--	--	40	3,320	2
Canada	4,280	279	--	160	117 5/	118	27	4,980	56,000	--
Colombia	--	--	190	--	--	--	--	190	1,950	--
Dominican Republic	--	--	181	--	--	--	--	181	4,390	--
Finland	560	17	--	--	--	--	58	635	7,580	--
France	182	--	--	--	145 5/	--	25	352	4,030	6
Germany	--	1	--	--	53	--	18	72	1,580	15
Japan	--	1	--	2	7	--	17	27	559	5
Mexico	--	--	--	--	--	44	1	45	1,040	--
New Caledonia	--	--	731	--	--	--	--	731	3,000	--
Norway	2,380	--	--	--	8	--	--	2,390	16,600	--
Russia	386	--	--	--	--	--	--	386	9,110	--
South Africa	60	--	--	--	--	--	--	60	306	--
Sweden	--	11	--	--	--	--	--	11	2,300	--
United Kingdom	--	5	--	--	86	--	12	103	2,470	2
Venezuela	--	--	231	--	--	4	--	235	1,610	--
Zimbabwe	193	--	--	--	--	--	--	193	912	--
Other	--	(6/)	--	--	13	8	164	185	4,640	19
Total	9,160	434	1,330	162	429	174	322	12,000	138,000	54
2001: January-November	103,000	7,670	10,900	1,160	5,270	7,160	2,920	138,000	XX	1,040
2000: January-November	109,000	13,400	16,000	2,370	6,200	4,060	3,170	154,000	XX	914

XX Not applicable. -- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ The nickel contents are assumed to be as follows: metallurgical-grade oxide (77%), waste and scrap (50%), and stainless steel scrap (7.5%). The chemical category includes chlorides (25%), sulfates (22%), and other salts (22%), supported catalysts (22%), and oxide, sesquioxide, and hydroxide (65%).

3/ Excludes wrought nickel.

4/ May include revisions for prior months.

5/ All or part of these data have been referred to the U.S. Census Bureau for verification.

6/ Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 5
U.S. EXPORTS OF NICKEL, BY COUNTRY 1/

(Metric tons, nickel content) 2/

Period and country of destination	Cathodes, pellets, and briquets	Powder and flakes	Ferro-nickel	Metal-lurgical-grade oxide	Waste and scrap	Stainless steel scrap	Chemicals	Total 3/	Total year to date	Wrought nickel
2000:										
November	84	166	--	273	1,290	3,380	214	5,410	53,200	75
December	85	174	--	219	1,220	2,790	358	4,850	58,100	85
January-December	1,690	1,260	38	1,930	14,800	35,100	3,230	58,100	XX	1,410
2001:										
January	76	148	--	299	933	2,740	216	4,410	4,410	201
February	98	164	--	131	1,050	3,680	344	5,470	9,880	233
March	66	105	4	175	1,480	4,480	571	6,880	16,800	282
April	69	134	4	172	1,280	2,550	338	4,550	21,300	256
May	74	122	3	136	1,810	3,320	445	5,910	27,200	552
June	166	162	--	95	1,480	2,680	219	4,800	32,000	49
July	154	73	12	161	1,370	3,520	452	5,740	37,700	99
August	90	108	11	205	1,160	1,600	224	3,400	41,100	116
September	156	115	1	161	1,030	1,970	178	3,610	44,800	151
October	170	90	14	142	1,740	2,680	346	5,180	49,900	177
November:										
Australia	--	(4/)	--	--	--	1	1	2	89	(4/)
Belgium	--	2	--	--	--	3	--	5	819	1
Canada	25	25	--	126	725	208	34	1,140	14,100	24
Germany	--	9	--	1	71	54	11	146	1,780	1
India	1	--	--	--	28	66	1	96	1,850	--
Italy	--	1	--	--	--	--	--	1	378	(4/)
Japan	--	2	--	1	64	25	23	115	3,510	(4/)
Korea, Republic of	--	2	--	--	--	158	12	172	10,300	6
Mexico	102	8	--	--	23	3	13	149	1,390	14
Netherlands	--	1	--	--	29	10	4	44	1,210	(4/)
South Africa	--	--	--	--	--	--	--	--	356	--
Spain	2	--	--	--	25	--	--	27	30	--
Sweden	--	--	--	--	62	4	1	67	502	1
Taiwan	--	16	--	--	--	625	8	649	10,600	(4/)
United Kingdom	--	7	--	4	27	(4/)	(4/)	38	534	7
Other	28	12	--	(4/)	44	196	40	320	5,480	70
Total	158	85	--	132	1,100	1,350	148	2,970	52,900	124
2001: January-November	1,280	1,310	50	1,810	14,400	30,600	3,480	52,900	XX	2,240
2000: January-November	1,600	1,080	37	1,710	13,600	32,300	2,870	53,200	XX	1,320

XX Not applicable. -- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ The nickel contents are assumed to be as follows: metallurgical-grade oxide (77%), waste and scrap (50%), and stainless steel scrap (7.5%). The chemical category includes chlorides (25%), sulfates (22%), and other salts (22%), supported catalysts (22%), and oxide, sesquioxide, and hydroxide (65%).

3/ Excludes wrought nickel.

4/ Less than 1/2 unit.

Source: U. S. Census Bureau.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF NICKEL ALLOYS, BY COUNTRY 1/

(Metric tons, gross weight)

Period and country of origin	Unwrought alloyed ingot	Bars, rods, and profiles	Wire	Plates and sheets	Foil	Tubes and pipes	Other alloyed articles	Total	Total year to date
2000:									
November	374	234	358	248	27	219	153	1,610	17,300
December	513	240	280	210	27	308	134	1,710	19,000
January-December	4,710	2,530	4,750	3,330	141	2,040	1,560	19,000	XX
2001:									
January	441	248	450	227	(2/)	140	186	1,690	1,690
February	243	308	466	325	3	165	103	1,610	3,310
March	290	359	430	312	8	237	138	1,770	5,080
April	314	428	509	272	1	194	138	1,860	6,940
May	245	396	414	261	(2/)	442	175	1,930	8,870
June	276	366	423	238	(2/)	358	152	1,810	10,700
July	413	389	511	293	1	199	141	1,950	12,600
August	520	308	318	203	(2/)	148	159	1,660	14,300
September	357	161	247	202	(2/)	193	129	1,290	15,600
October	321	271	452	312	1	234	182	1,770	17,300
November:									
Australia	202	--	--	--	--	--	--	202	1,120
Belgium	15	(2/)	--	--	--	--	(2/)	15	182
Canada	--	(2/)	5	--	--	18	8	31	231
France	12	3	58	--	--	15	(2/)	88	1,130
Germany	--	107	162	117	(2/)	54	3	444	6,140
Italy	--	100	3	--	--	10	10	124	1,610
Japan	13	--	1	2	--	6	2	24	1,290
Mexico	--	--	--	--	--	--	61	61	879
Netherlands	--	--	--	--	--	--	6	6	57
South Africa	--	--	--	--	--	--	--	--	351
Sweden	--	16	223	2	--	39	--	280	2,550
United Kingdom	99	31	5	(2/)	(2/)	10	9	154	2,610
Other	--	11	10	1	--	1	44	64	689
Total	341	268	467	122	(2/)	153	143	1,490	18,800
2001: January-November	3,760	3,500	4,690	2,770	14	2,460	1,650	18,800	XX
2000: January-November	4,190	2,290	4,470	3,120	116	1,730	1,420	17,300	XX

XX Not applicable. -- Zero.
1/ Data are rounded to no more than three significant digits; may not add to totals shown.
2/ Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 7
U.S. EXPORTS OF NICKEL ALLOYS, BY COUNTRY 1/

(Metric tons, gross weight)

Period and country of destination	Unwrought alloyed ingot	Bars, rods, and profiles	Wire	Plates and sheets	Foil	Tubes and pipes	Other alloyed articles	Total	Total year to date
2000:									
November	1,290	523	190	661	22	107	223	3,020	26,200
December	866	600	155	635	18	93	189	2,560	28,700
January-December	9,850	5,370	1,900	7,530	402	1,010	2,660	28,700	XX
2001:									
January	787	511	82	730	14	133	183	2,440	2,440
February	827	620	146	438	6	146	205	2,390	4,830
March	1,030	922	163	615	9	163	240	3,140	7,970
April	633	579	174	656	38	307	425	2,810	10,800
May	1,170	722	156	420	12	179	243	2,900	13,700
June	1,210	648	184	668	4	128	221	3,060	16,700
July	1,420	744	106	615	9	163	263	3,320	20,100
August	1,240	642	165	548	5	129	354	3,080	23,100
September	1,610	667	97	543	6	155	390	3,470	26,600
October	1,300	601	171	770	13	107	950	3,920	30,500
November:									
Australia	58	--	(2/)	15	--	3	4	80	567
Belgium	13	203	8	6	--	1	(2/)	231	2,060
Canada	15	81	14	35	2	46	52	245	3,060
France	825	105	1	9	1	1	17	959	10,200
Germany	4	10	1	48	--	1	10	74	852
India	--	--	--	--	--	--	(2/)	(2/)	32
Ireland	5	(2/)	18	1	--	--	(2/)	24	253
Italy	81	--	1	54	--	--	(2/)	136	1,390
Japan	13	11	5	120	--	(2/)	16	165	1,600
Korea, Republic of	3	9	3	7	(2/)	(2/)	1	23	353
Mexico	1	1	64	15	18	42	179	320	2,950
Netherlands	--	7	--	1	--	1	(2/)	9	185
Singapore	6	9	(2/)	17	1	1	1	35	281
Spain	2	--	--	--	--	1	--	3	110
Sweden	--	4	--	2	--	--	--	6	118
Switzerland	16	2	4	46	--	6	(2/)	74	573
Taiwan	--	2	--	5	(2/)	1	2	10	212
United Kingdom	146	110	2	128	(2/)	9	3	398	5,530
Other	4	87	14	114	1	11	48	279	3,220
Total	1,190	641	135	623	23	124	333	3,070	33,600
2001: January-November	12,400	7,300	1,580	6,630	139	1,730	3,810	33,600	XX
2000: January-November	8,980	4,770	1,740	6,900	384	918	2,480	26,200	XX

XX Not applicable. -- Zero.
1/ Data are rounded to no more than three significant digits; may not add to totals shown.
2/ Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 8
NICKEL CONSUMPTION IN CAST AND WROUGHT PRODUCTS

	Percent	
	Wrought	Cast
December 2001:		
Stainless and heat resisting steels	71	29
Alloy steels	100	(1/)
Superalloys	86	14
Copper-nickel alloys	93	7
Other nickel-base alloys	100	(1/)

1/ Less than 1/2 unit.

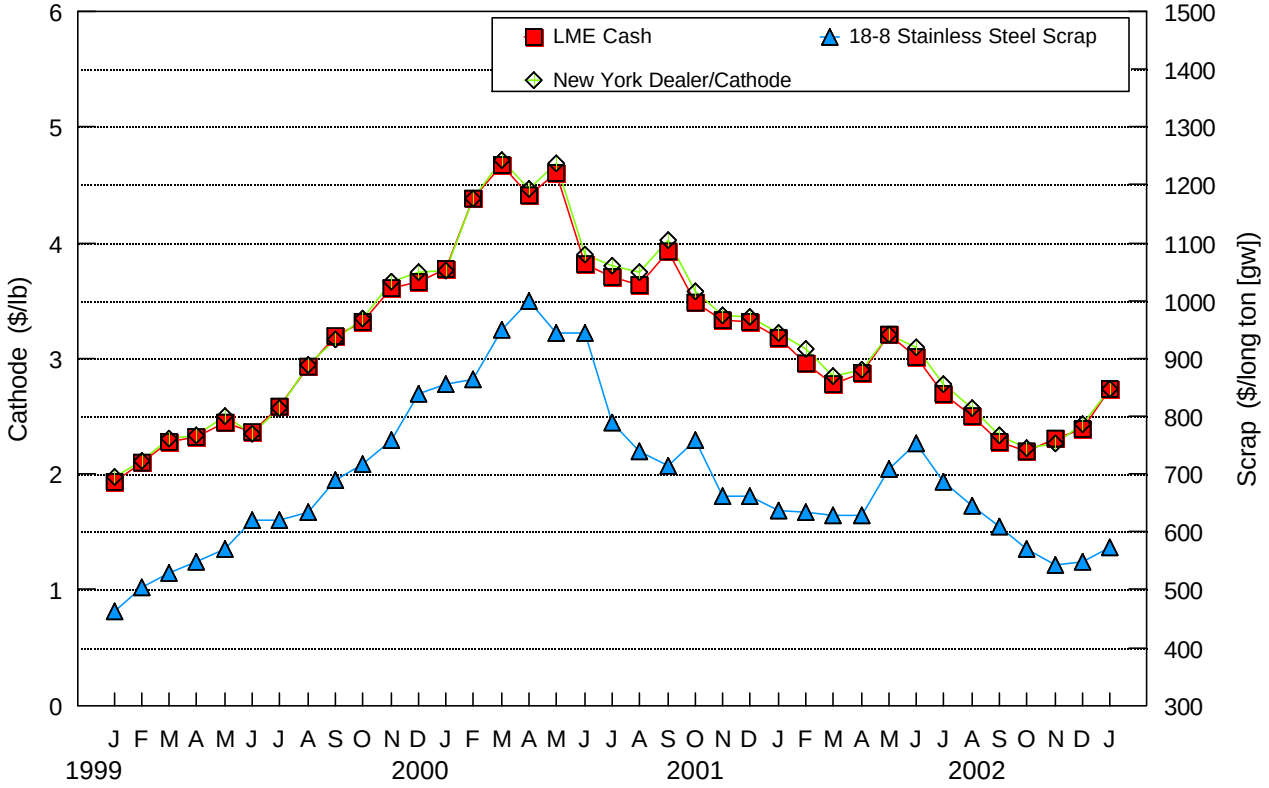
TABLE 9
NICKEL PRICES

Date	Cathode NY Dealer $/lb.	LME Cash $/t	LME Cash $/lb.	18/8 Stainless steel scrap Pittsburgh $/long ton(gw)
2001:				
Average for week ending:				
November 2	2.08-2.15	4,475.500	2.030	560-580
November 9	2.10-2.18	4,574.000	2.075	525-550
November 16	2.24-2.70	5,405.000	2.452	525-550
November 23	2.47-2.71	5,256.000	2.384	525-550
November 30	2.42-2.61	5,313.500	2.410	525-550
December 7	2.46-2.57	5,318.000	2.412	545-550
December 14	2.30-2.45	4,932.000	2.237	545-550
December 21	2.29-2.60	5,366.500	2.434	545-550
December 28	2.66-2.68	5,701.250	2.586	545-550
Average for month of:				
January	3.215	6,994.773	3.173	637
February	3.080	6,524.125	2.959	634
March	2.848	6,133.523	2.782	630
April	2.905	6,329.868	2.871	630
May	3.212	7,060.833	3.203	708
June	3.088	6,641.190	3.012	753
July	2.773	5,937.045	2.693	688
August	2.567	5,520.795	2.504	646
September	2.335	5,027.000	2.280	610
October	2.228	4,825.326	2.189	570
November	2.262	5,078.409	2.304	544
December	2.428	5,263.824	2.388	548
Yearly average	2.745	5,944.726	2.696	633
2002:				
Average for week ending:				
January 4	2.63-2.73	5,790.833	2.627	570-575
January 11	2.75-2.95	6,230.500	2.826	570-575
January 18	2.83-2.95	6,144.500	2.787	570-575
January 25	2.68-2.83	5,934.500	2.692	570-575
Average for month of:				
January	2.736	6,043.182	2.741	573

Source: Platts Metals Week and American Metal Market.

1999-2002 AVERAGE MONTHLY PRICES

(Derived from Metals Week and American Metal Market quotations)



1998-2001 STOCKS